

**Waist seal with decorative strip**

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**Abstract**

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A sealing, trimming or finishing strip 24 comprises a channel 48 extending along the length of the strip 24 and adapted to grippingly receive a decorative member 56. The sealing strip may form a waist seal 24 on the door of a vehicle body comprising an oppositely facing channel 46 for gripping the marginal edge of the door panel 6. The decorative strip 56 may comprise two separate components 56A,56B of contrasting appearance and with interlocking legs which are gripped within the outer facing channel 48. Also disclosed is a vehicle door comprising inner and outer waist seals 22,24 mounted on inner and outer vehicle door panels 7, 6 so as to seal window glass 18 along a waist gap 20. Both seals 22,24 may have a reinforced core. A further sealing, trimming or finishing strip 22 is disclosed which comprises a channel 28 for embracingly receiving an adjacent member, e.g door trim 40. The strip 22 has a sealing lip 42 which is pivoted into contact with said adjacent member. In a further embodiment the strip 22 forms part of a waist seal assembly and comprises a second channel 26 for gripping the inner panel 7 of a vehicle door.

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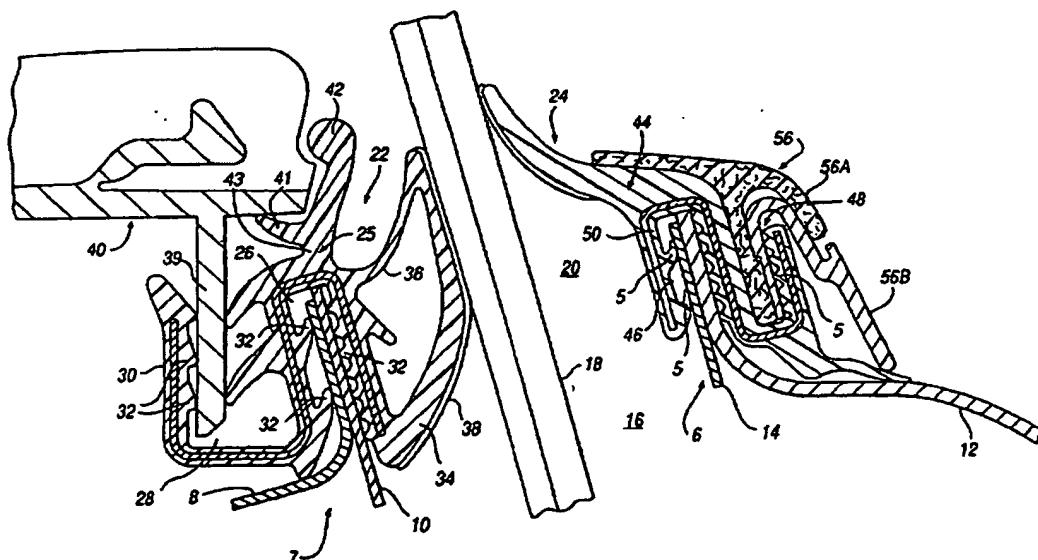
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(72) Inventor(s) Reimund Plotnik	(58) Field of Search UK CL (Edition R ) E1J JGN INT CL <sup>7</sup> B60J 10/00 10/04, B60R 13/04 13/06 Online: WPI, EPDOC, JAPIO
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(54) Abstract Title  
Waist seal with decorative strip

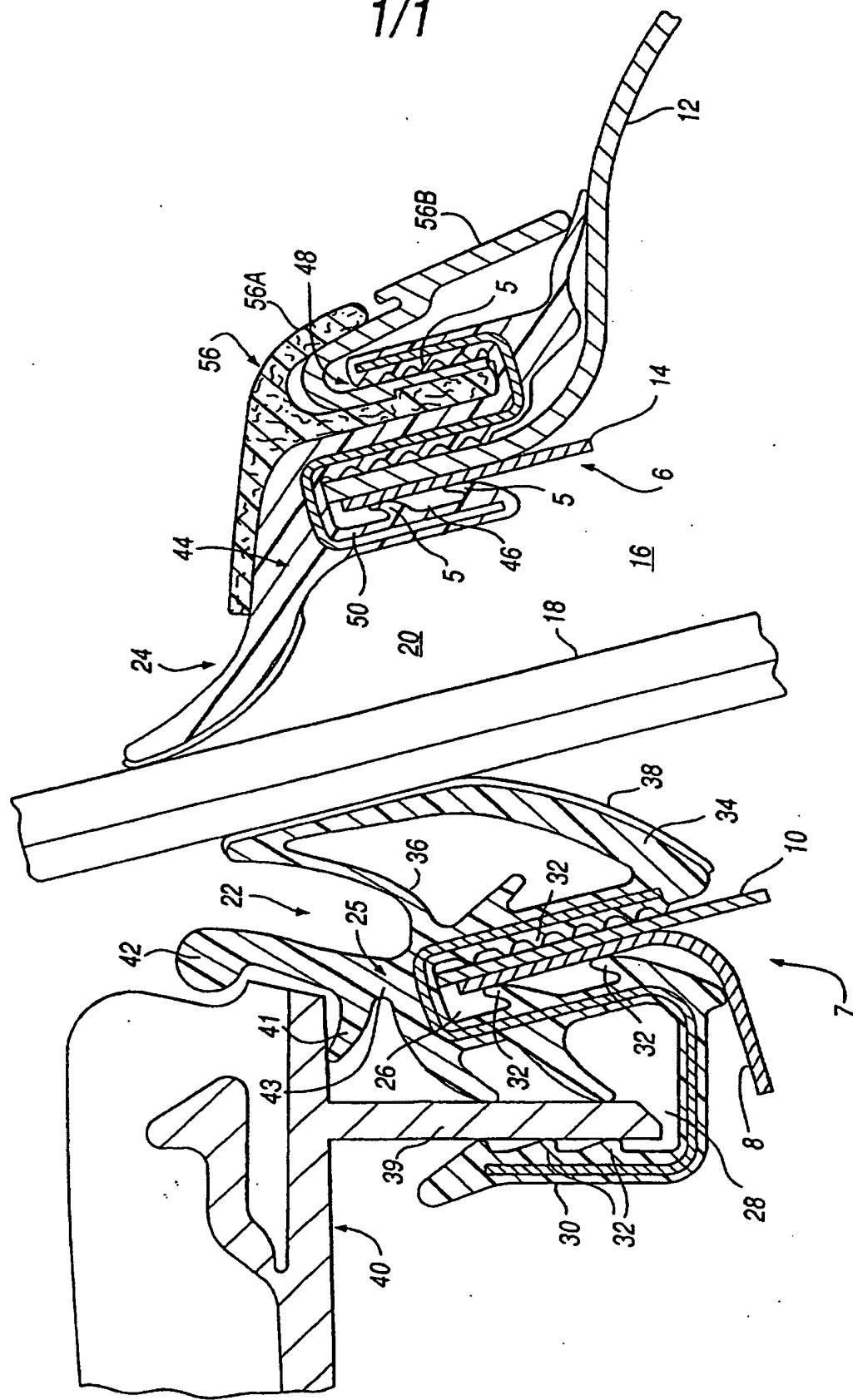
(57) A sealing, trimming or finishing strip 24 comprises a channel 48 extending along the length of the strip 24 and adapted to grippingly receive a decorative member 56. The sealing strip may form a waist seal 24 on the door of a vehicle body comprising an oppositely facing channel 46 for gripping the marginal edge of the door panel 6. The decorative strip 56 may comprise two separate components 56A,56B of contrasting appearance and with interlocking legs which are gripped within the outer facing channel 48. Also disclosed is a vehicle door comprising inner and outer waist seals 22,24 mounted on inner and outer vehicle door panels 7, 6 so as to seal window glass 18 along a waist gap 20. Both seals 22,24 may have a reinforced core. A further sealing, trimming or finishing strip 22 is disclosed which comprises a channel 28 for embracingly receiving an adjacent member, e.g door trim 40. The strip 22 has a sealing lip 42 which is pivoted into contact with said adjacent member. In a further embodiment the strip 22 forms part of a waist seal assembly and comprises a second channel 26 for gripping the inner panel 7 of a vehicle door.



At least one drawing originally filed was informal and the print reproduced here is taken from a later filed formal copy.

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SEALING, TRIMMING AND FINISHING STRIPS AND VEHICLE DOORS  
INCORPORATING SUCH STRIPS

The invention relates to sealing, trimming and finishing strips and vehicle doors incorporating such strips.

According to the invention, there is provided a sealing, trimming or finishing strip, comprising a channel extending along the length of the strip and adapted to grippingly receive a decorative member.

According to the invention, there is further provided a sealing, trimming or finishing strip for forming a waist seal on the door of a vehicle body to seal along a gap formed in the door through which a window glass carried by the door slides, the strip defining two side-by-side oppositely facing channels, a first one of which is adapted for embracingly gripping a panel part of the door and the second one of which is adapted for embracingly receiving a decorative strip arrangement.

According to the invention, there is also provided a vehicle door, comprising inner and outer panel parts for forming surfaces of the door on the inside and outside of the vehicle and together defining a hollow interior space for the door and carrying a window frame which receives a window glass slidable into and from the hollow interior space through

a waist gap formed between marginal edges of the two panel parts, inner and outer waist seals carried by the marginal edges of the panel parts for sealingly contacting opposite surfaces of the slidable window glass, the outer waist seal being formed of flexible material defining first and second oppositely facing channels extending along the length of the waist seal, the first channel embracingly gripping the marginal edge of the outer door panel part to support the waist seal and the second channel grippingly receiving a decorative strip arrangement presenting a decorative surface facing outwardly of the door.

According to the invention, there is still further provided a sealing, trimming or finishing strip, comprising a first sealing part for contacting a movable surface to be sealed, a channel extending along the length of the strip for embracingly receiving part of an adjacent member, and a second sealing part mounted to be contacted by the adjacent member as the said part thereof enters the channel whereby to cause the second sealing part to be moved into at least partially embracing contact with the adjacent member.

According to the invention, there is also provided a vehicle door, comprising inner and outer panel parts for forming surfaces of the door on the inside and outside of the vehicle and together defining a hollow interior space for the door and carrying a window frame which receives a window glass slidable into and from the hollow interior space through a waist gap formed between marginal edges of the two panel parts and inner and outer waist seals carried by the marginal edges of the panel parts for sealingly contacting opposite surfaces of the slidable window glass, the inner waist seal being formed of

flexible material defining first and second oppositely facing channels extending along the length of the waist seal, the first channel embracingly gripping the marginal edge of the inner door panel part to support the waist seal and the second channel grippingly receiving a first part of a trim panel and mounting it on the inside surface of the door, the flexible material of the inner waist seal carrying an extension which is contacted by a second part of the trim panel as the first part thereof is received by the second channel whereby to cause a flap part of the flexible material to pivot into contact over an edge of the trim panel.

Sealing, trimming and finishing strips embodying the invention, and vehicle doors according to the invention and incorporating such strips, will now be described, by way of example only, with reference to the accompanying diagrammatic drawing which is a cross-sectional view through part of a vehicle door in its "waist" region.

The Figure shows a panel part 5 forming the face of a vehicle door on the inside of the vehicle body, and a panel part 6 forming the face of the vehicle door on the outside of the vehicle. The inner panel part 5 comprises metal panels 8 and 10 and the outer panel part 6 comprises metal panels 12 and 14. The inner and outer panel parts 5,6 define a hollow interior space 16 in the lower section of the vehicle door, into and out of which slidingly moves the window glass 18, which is supported in a rigid window frame (not shown) carried by the lower section of the door.

The window glass 18 slides into and out of the hollow space 16 through a gap 20 (the waist gap) between the upper margins of the panel parts 5,6. In order to provide weather-sealing at the waist gap 20, inner and outer waist seals 22 and 24 are provided.

The inner waist seal 22 comprises plastics, rubber or similar material 25, preferably produced by an extrusion process, which extends longitudinally of the waist gap 20 and is shaped to define a first channel 26 facing in one direction and a second channel 28 facing in the opposite direction. A reinforcing core or carrier 30 made of resilient material, such as metal, is embedded in the extruded material 25 and follows the shapes of the channels 26 and 28. The carrier 30 may be made of unapertured metal. Instead, the metal may be provided with slits or slots or it may comprise a series of double-U shaped metal elements connected together by integral connecting links or entirely disconnected from each other. Instead, looped wire may be used. Other forms of carrier, not necessarily made of metal, can be used.

As shown, the extruded material 25 defines lips 32 on the inside facing walls of the two channels. The lips 32 of the channel 26 make frictional gripping contact with opposite surfaces of the inner panel arrangement 5 and hold the inner waist seal firmly in position on the inside of the vehicle door. The gripping action of the lips 32 is accentuated by the resilience of the carrier 30.

The extruded material 25 of the inner waist seal 22 integrally carries a flexible sealing lip

34 which is supported by an integral flexible web 36. The flexible lip 34 has a surface 38, advantageously covered with flock or other low friction material, which sealingly bears against the inner face of the window glass 18 to provide sealing as the glass moves vertically upwards and downwards and to seal off the hollow interior 16 of the door.

The second channel 28 of the inner waist seal 22 grippingly receives a leg part 39 of a trim panel indicated generally at 40 which is carried on and covers the inner face of the vehicle door. The extruded material 25 extends upwardly forming a flap 42 which covers the marginal edge of the trim panel 40. As the leg part 39 of the trim panel 40 is pushed into the channel 28, the trim panel 40 contacts an extension 41 of the flap 42, forcing the flap 42 to pivot about a pivot point 43 so that the flap covers the edge of the trim panel 40.

The outer waist seal 24 is also formed from plastics, rubber, or similar flexible material 44, again preferably formed by an extrusion process. The material 44 defines channels 46 and 48 facing in opposite directions and incorporates a reinforcing core or carrier 50 which may have a construction similar to that of the carrier 30.

Channel 46 embraces the marginal edge of the outer panel part 6. Inwardly directed gripping lips 52 within the channel 46 (and generally similar to the gripping lips 32 of the inner waist seal 22) frictionally grip opposite surfaces of the panel part 6 and ensure that the outer waist seal 24 is therefore firmly supported on the outside of the waist gap 16.

The outer waist seal 24 integrally defines a flexible lip 54 which has a surface 56 preferably carrying flock or other low friction material which is in sealing contact with the outer face of the window glass 18.

The outer channel 48 of the outer waist seal 24 grippingly supports a decorative strip arrangement 56. The decorative strip arrangement 56 comprises two separate members extending longitudinally along the length of the waist gap 20, comprising an upper curved member 56A which is relatively rigid and may be formed to present a bright finish. It may, for example, comprise polished metal or chromium-plated metal. It partially overlays the upper surface of the lip 54. The lower strip member 56B may be made of rigid plastics or similar material and presenting a contrasting colour, such as having a black finish. Both strip members 56A,56B carry legs which, in this example, are formed to interlock with each other and to be a tight frictional fit within the channel 48. As shown in the Figure, a series of small gripping lips 52 are arranged along one inner face of the channel 48 to help to secure the decorative strip arrangement 56 within the channel 48. However, gripping lips could be provided on both faces of the channel 48.

The extruded material 44 of the outer waist seal 24 includes a lower lip 58 which sealingly bears against the outer panel 12 of the door.

In this way, the outer waist seal 24 grippingly supports the decorative strip arrangement

56 which can thus be easily mounted in position, during assembly of the vehicle, simply by clippingly inserting the interlocking legs of the decorative strip arrangement into the second channel 48 of the waist seal. The use of separate clips or other fastenings is no longer necessary.

The decorative strip arrangement 56 can have any suitable shape, colour or finish. Although the Figure shows a decorative strip arrangement comprising two separate strip members 56A and 56B with contrasting finishes, this is not essential: other forms of decorative strip arrangement can be used instead, including strip arrangements comprising only a single strip member.

CLAIMS

1. A sealing, trimming or finishing strip, comprising a channel extending along the length of the strip and adapted to grippingly receive a decorative member.
2. A sealing, trimming or finishing strip for forming a waist seal on the door of a vehicle body to seal along a gap formed in the door through which a window glass carried by the door slides, the strip defining two side-by-side oppositely facing channels, a first one of which is adapted for embracingly gripping a panel part of the door and the second one of which is adapted for embracingly receiving a decorative strip arrangement.
3. A strip according to claim 2, defining a lip integrally extending from the base of the first channel for sealingly contacting the window glass, the decorative strip arrangement when received in the second channel at least partially overlying a surface of the lip.
4. A strip according to claim 3, in which the decorative strip arrangement when received in the second channel also extends towards the panel part of the door.
5. A strip according to any one of claims 2 to 4, in which the decorative strip arrangement comprises two separate strip parts of contrasting appearance.

6. A vehicle door, comprising inner and outer panel parts for forming surfaces of the door on the inside and outside of the vehicle and together defining a hollow interior space for the door and carrying a window frame which receives a window glass slidable into and from the hollow interior space through a waist gap formed between marginal edges of the two panel parts, inner and outer waist seals carried by the marginal edges of the panel parts for sealingly contacting opposite surfaces of the slidable window glass, the outer waist seal being formed of flexible material defining first and second oppositely facing channels extending along the length of the waist seal, the first channel embracingly gripping the marginal edge of the outer door panel part to support the waist seal and the second channel grippingly receiving a decorative strip arrangement presenting a decorative surface facing outwardly of the door.
7. A door according to claim 6, in which flexible material of the outer waist seal defines a flexible lip extending from the base of the first channel into sealing contact with the window glass, and the decorative strip arrangement has a part partially overlying a surface of the lip.
8. A door according to claim 7, in which the decorative strip arrangement has another part which extends towards an outside surface of the outer panel part of the door.
9. A door according to claim 6, in which the decorative strip arrangement comprises two separate parts presenting contrasting decorative appearances.

10. A door according to claim 8, in which the two parts are separate and present contrasting decorative appearances.
11. A door according to claim 9 or 10, in which the two parts of the decorative strip arrangement define interlocking legs grippingly received in the second channel.
12. A door according to any one of claims 6 to 11, in which the inner waist seal comprises flexible material defining a channel for embracingly gripping the marginal edge of the inner panel part of the door for mounting the inner waist seal in position in which part of the flexible material sealingly bears against the window glass.
13. A door according to claim 12, in which the flexible material of the inner waist seal defines a further channel, facing in the opposite direction to its first-mentioned channel, the further channel embracingly receiving and supporting a trim part extending at least partially over the inner panel part of the door.
14. A door according to any one of claims 6 to 13, in which the flexible material of one or both of the waist seals is reinforced with a or a respective reinforcing core or carrier.
15. A sealing, trimming or finishing strip, comprising a first sealing part for contacting a movable surface to be sealed, a channel extending along the length of the strip for

embracingly receiving part of an adjacent member, and a second sealing part mounted to be contacted by the adjacent member as the said part thereof enters the channel whereby to cause the second sealing part to be moved into at least partially embracing contact with the adjacent member.

16. A strip according to claim 15, in which the first sealing part is carried by means defining a further channel for embracingly gripping a mount whereby to mount the strip next to the movable surface.

17. A strip according to claim 15 or 16, in which the two channels face in opposite directions.

18. A strip according to any one of claims 15 to 17, in which the adjacent member is a trim panel on a vehicle.

19. A strip according to claim 18, in which the trim panel is a trim panel on a vehicle door and the movable surface is the surface of a window glass carried by the door.

20. A vehicle door, comprising inner and outer panel parts for forming surfaces of the door on the inside and outside of the vehicle and together defining a hollow interior space for the door and carrying a window frame which receives a window glass slidable into and from the hollow interior space through a waist gap formed between marginal edges

of the two panel parts and inner and outer waist seals carried by the marginal edges of the panel parts for sealingly contacting opposite surfaces of the slidable window glass, the inner waist seal being formed of flexible material defining first and second oppositely facing channels extending along the length of the waist seal, the first channel embracingly gripping the marginal edge of the inner door panel part to support the waist seal and the second channel grippingly receiving a first part of a trim panel and mounting it on the inside surface of the door, the flexible material of the inner waist seal carrying an extension which is contacted by a second part of the trim panel as the first part thereof is received by the second channel whereby to cause a flap part of the flexible material to pivot into contact over an edge of the trim panel.

21. A door according to claim 20, in which the outer waist seal comprises flexible material defining a channel for embracingly gripping the marginal edge of the outer panel part of the door for mounting the outer waist seal in position in which part of the flexible material sealingly bears against the window glass.
22. A door according to claim 21, in which the flexible material of the outer waist seal defines a further channel, facing in the opposite direction to its first-mentioned channel, the further channel embracingly receiving and supporting a decorative strip arrangement.
23. A door according to any one of claims 20 to 22, in which the flexible material of one or both of the waist seals is reinforced with a or a respective reinforcing core or

carrier.

24. An inner waist seal for a vehicle door, substantially as described with reference to the accompanying drawings.
25. An outer waist seal for a vehicle door, substantially as described with refrence to the accompanying drawing.
26. A door for a vehicle body, substantially as described with reference to the accompanying drawing.



Application No: GB 0011679.8  
Claims searched: 1-14

Examiner: Barnaby Wright  
Date of search: 18 October 2000

**Patents Act 1977**  
**Search Report under Section 17**

**Databases searched:**

UK Patent Office collections, including GB, EP, WO & US patent specifications, in:

UK Cl (Ed.R): E1J (JGN)

Int Cl (Ed.7): B60J (10/00, 10/04); B60R (13/04, 13/06)

Other: Online: WPI, EPODOC, JAPIO

**Documents considered to be relevant:**

Category	Identity of document and relevant passage	Relevant to claims
Y	GB 2315798 A DRAFTEX See especially figs 2-7, and page 4, ln 1 to page 6, ln 2.	Y: 2, 6, 12-14
X, Y	GB 2267527 A DRAFTEX See especially fig 12, and page 11, ln 20-28.	X: 1 Y: 2, 6, 12-14
X, Y	GB 2125474 A NISSAN See especially figs 4 & 5, and page 2, ln 38-43.	X: 1 Y: 2, 6, 12-14
X, Y	GB 2075101 A SILENT CHANNEL See especially figs 2, 3, 5 & 6, and page 2, ln 88-129, and page 3, ln 39-68.	X: 1, 2, 5, 6, 9 Y: 12-14
X, Y	GB 2046338 A METZELER See especially figs 2 & 3, and page 1, ln 124-130.	X: 1 Y: 2, 5, 6, 9, 12-14
X, Y	DE 4314123 A1 SCHMIDT See especially EPODOC and WPI abstracts and fig 2.	X: 1 Y: 2, 3, 6, 12-14.

X Document indicating lack of novelty or inventive step

Y Document indicating lack of inventive step if combined with one or more other documents of same category.

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